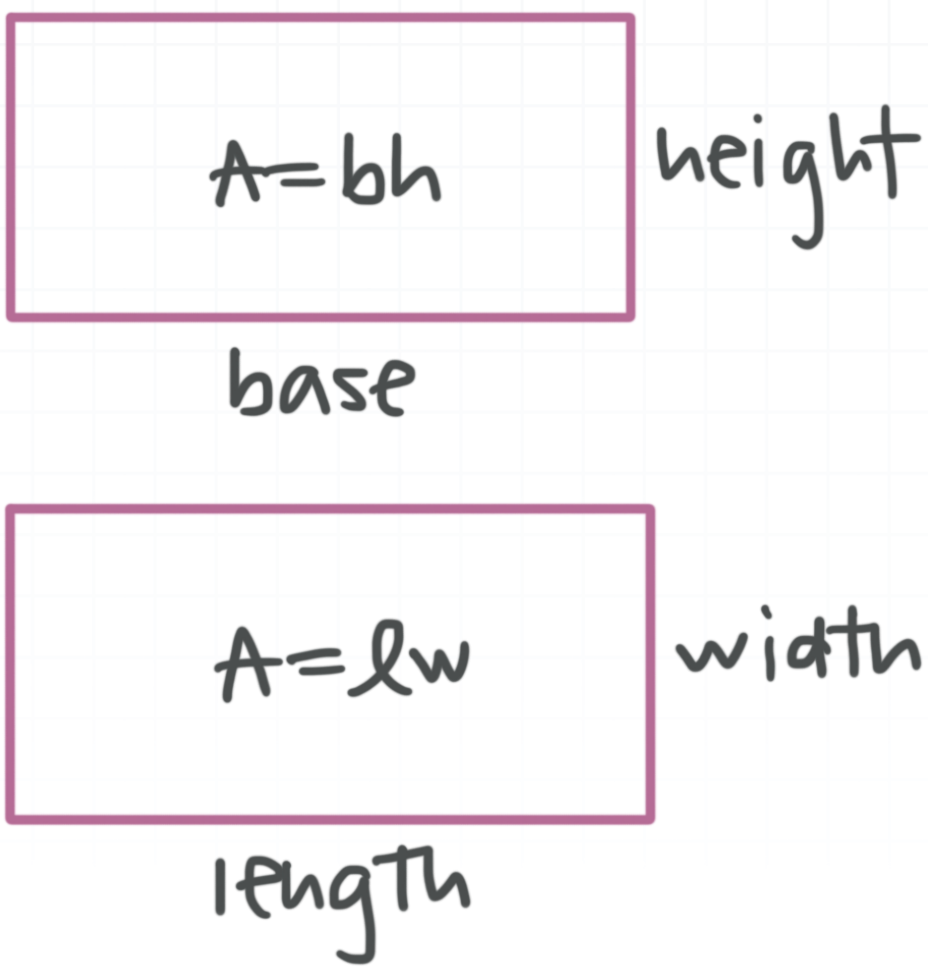
Area of a rectangle

The area of a rectangle is its base times its height. We can also describe the area as length times width.



The units of area are always square units (units^2). In other words, if lengths are given in inches, the units for area will be in^2, or if the lengths are given in centimeters, the units for area will be cm^2.

Let's start by working through an example.

Example

Find the area of the rectangle.

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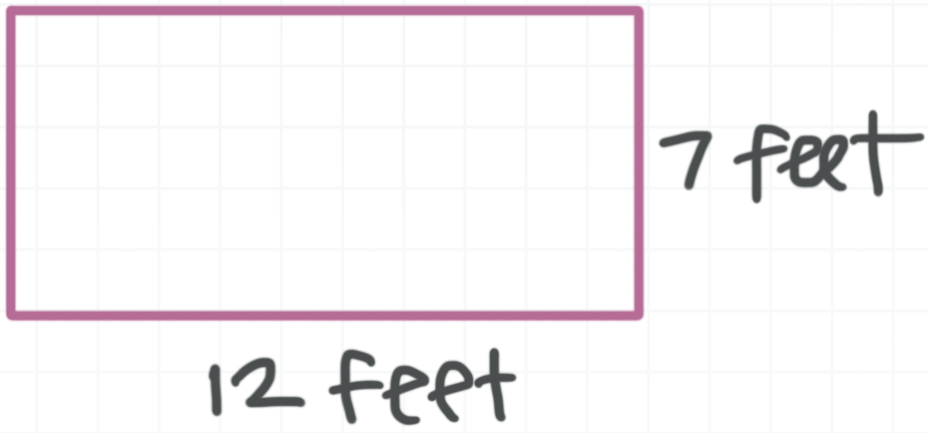

We'll use the formula $A = bh$, where A is area, b is the base, and h is the height of the rectangle. Plugging in the dimensions of the rectangle we've been given, we get

$$A = bh$$

$$A = (12)(7)$$

$$A = 84 \text{ ft}^2$$

Let's do one with an additional step.

Example

A rectangular mirror measures 24 inches by 4 feet. What is the area of the mirror?

To find the area of the mirror, the units must be the same. You can convert inches to feet by remembering that there are 12 inches in 1 foot.

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$$\frac{24 \text{ inches}}{12 \text{ inches}} = 2 \text{ feet}$$

Now we can use the fact that the mirror is a rectangle to multiply the length and width of the mirror.

$$A = lw$$

$$A = (2)(4)$$

$$A = 8 \text{ ft}^2$$

We could have also found the area in square inches by converting 4 feet to inches.

$$4 \text{ feet} \cdot \frac{12 \text{ inches}}{1 \text{ foot}} = 48 \text{ inches}$$

Then the area in square inches would be

$$A = lw$$

$$A = (24)(48)$$

$$A = 1{,}152 \text{ in}^2$$

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